Syllabus

EME 4627/5403 - Technology Systems Operations 2

Course Description
Students learn advanced principles associated with designing and developing technology support systems for education and training organizations spanning one or more sites, engaged in the development of learning environments and communities.

Purpose of the Course
The course is designed to assist technology support personnel in acquiring the knowledge, skills, and abilities necessary to design, develop, and maintain network infrastructure supporting the organization's instructional mission.

Major Goals
Upon completion of this course, learners will be able to implement, maintain and troubleshoot the major components of an organization's network infrastructure supporting learning environments and communities.

Objectives

*Topic: Simple Local Area Network*
- Identify all of the components associated with a simple local area network.
- Place all of the components associated with a LAN in logical relationship with each other.
- Specify the performance characteristics associated with LAN components.
- Associate specific troubleshooting approaches to LAN problems.

*Topic: Campus Networks*
- Define the characteristics of a campus backbone.
- Identify backbone technologies and explain the important characteristics of each.
- Identify components associated with a campus backbone.
- Place components associated with a campus backbone in logical relationship with each other, subLANS and core infrastructure.
- Differentiate between the performance characteristics that are desirable for a campus backbone architecture and those found in simple LAN devices.

*Topic: Enterprise Core and Infrastructure*
- Determine important functions of the core technology infrastructure.
- Identify various core technology infrastructure models.
- Identify components associated with specific core technology infrastructure models.
- Select a core technology infrastructure model, specify the components necessary, identify the component performance characteristics and identify their logical relationship.
• Define the properties of core technology components that differentiate them from simple LAN components of similar function.

**Topic: WAN Technologies**

• Define the properties and function of a Wide Area Network.
• Identify the important components and services associated with a WAN.
• Identify important performance characteristics affecting the choice of components and services in WAN applications.
• Identify common practices for specifying and implementing telecommunication services.
• Identify common monitoring and troubleshooting procedures associated with telecommunication services.

**Topic: Specialized Networking Technologies**

• Describe protocols and technological characteristics of the streaming technologies.
• Describe protocols and technological characteristics of broadband technologies.
• Analyze the strengths and weaknesses of each of broadband technologies.
• Identify and describe protocols and technological characteristics of wireless network technologies.
• Compare and contrast wireless networking technologies and fixed cable plant systems.
• Analyze competing technologies for wireless services.
• Identify economical, political and cultural factors that influence the implementation of wireless technologies.

**Topic: System Documentation**

• Develop network documentation system.
• Identify documentation issues and requirements for different types of networks.

**Topic: Monitoring, Analysis, and Management Tools**

• Identify specific types of network troubleshooting and analysis tools.
• Identify monitoring and analysis tools appropriate for networks.
• Develop strategies for applying tool solutions for network problems.
• Develop strategies for addressing network maintenance issues.
• Explain significance of value ranges for network troubleshooting and analysis tools.
• Explain the significance of the information developed from monitoring and analysis tools in terms of its usefulness in solving infrastructure and network problems.

**Course Requirements and Evaluations**

**Required Books:**


**Recommended, but NOT required:**

- Dictionary of Internetworking Terms and Acronyms, Cisco Systems Inc.
- Network Troubleshooting Tools
- Ethernet: The Definitive Guide
- TCP/IP Network Administration, current edition
- Essential System Administration, current edition

**Assignments:**

**Midterm (10%)**
The midterm exam for Technology Systems Operations 2 is a combination of multiple choice, true/false, short answer and long answer. This exam is a closed book exam, timed for online students and proctored for service members. To prepare for the exam, review the self checks, dictionary of terms, and reflection/discussion areas.

**Final (10%)**
The final exam for Technology Systems Operations 2 is a combination of multiple choice, true/false, short answer and long answer. This exam is a closed book exam, timed for online students and proctored for service members. To prepare for the exam, review the self checks, dictionary of terms, and reflection/discussion areas.

**Dictionary of Terms (10%)**
Build a dictionary of the terms that you learn in this class. Include both a definition and the context of how this term is important for the IT professional. The dictionary should be in a worksheet or table format, with different elements of the dictionary in different columns. The dictionary should look something like this table in terms of format:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Where used/Function/importance to networking and telecommunications</th>
</tr>
</thead>
</table>

**Network Policy and Procedures Manual (40% - 30% for the components, 10% for the final assembled version)**
As part of your class activities and participation, you will build a manual that contains items that will be found in professional policy and procedures manual. You will create this manual throughout the course and submit a revised and compiled version at the end of the course. The manual will include sections on:

- Simple LAN Template (Module 2)
- Network Component Template (Module 2)
- Device Description Template (Module 2)
- Campus Network Template (Module 3)
Case Report (20%)
A case will be presented throughout the semester to frame the ideas that you will learn. For EACH MODULE create a summary of the module's case study problem with action items and recommendations. The report should include these items (use these words as headings for the different sections of your report):

- Introduction (maximum 1 page [double spaced] of narrative about the presented situation)
- Issues (Bulleted list of issues that you saw throughout the case)
- Findings (maximum 1 page [double spaced] 1 page narrative of issues resolve)
- Conclusions and Recommendations (maximum 2 pages [double spaced] summary and recommendations for the future of the case participants)

You will compile all of these individual module case reports into a single, compiled document with a cover page and table of contents, each module report starting on a new page. This is what I will evaluate.

Preparatory Discussions (10%)

Each Module provides an framing opportunity to consider the implications of the module's content on the decision-making and planning processes associated with managing a network. Do these first, before you begin work on any of the module's other assignments.

Grades:

- 94 - 100 A
- 90 - 93 A-
- 87 - 89 B+
- 83 - 86 B
- 82 - 80 B-
- 77 - 79 C+
- 73 - 76 C
- 70 - 72 C-
- 67 - 69 D+
- 63 - 66 D
- Below 62 F
Assistance for Students with Disabilities

The Student Disability Resource Center (SDRC) at the University of West Florida supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, such as time-limited exams, inaccessible web content, or the use of non-captioned videos and podcasts, please notify the instructor or the SDRC as soon as possible. You may contact the SDRC office by e-mail at sdrc@uwf.edu or by phone at (850) 474-2387. Appropriate academic accommodations will be determined based on the documented needs of the individual.

Expectations for Academic Conduct/Plagiarism Policy
As members of the University of West Florida, we commit ourselves to honesty. As we strive for excellence in performance, integrity—personal and institutional—is our most precious asset. Honesty in our academic work is vital, and we will not knowingly act in ways which erode that integrity. Accordingly, we pledge not to cheat, nor to tolerate cheating, nor to plagiarize the work of others. We pledge to share community resources in ways that are responsible and that comply with established policies of fairness. Cooperation and competition are means to high achievement and are encouraged. Indeed, cooperation is expected unless our directive is to individual performance. We will compete constructively and professionally for the purpose of stimulating high performance standards. Finally, we accept adherence to this set of expectations for academic conduct as a condition of membership in the UWF academic community.